

## Modern Synthesis and Human Variation Guided Notes

The fact of evolution is that \_\_\_\_\_.

The Modern Synthesis differs from Darwinian evolution in the following ways:

- 1.
- 2.
- 3.

What is the major controversy of the modern synthesis?

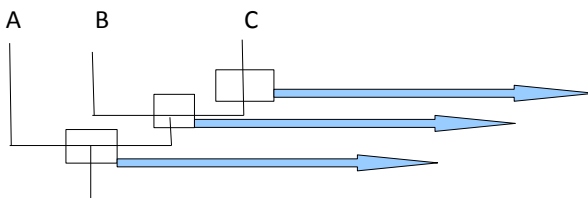
What is the alternate model called? \_\_\_\_\_

The central idea of biological evolution is \_\_\_\_\_.

Evolutionary relationships for a \_\_\_\_\_ pattern, a family tree referred to as a \_\_\_\_\_ by scientists.

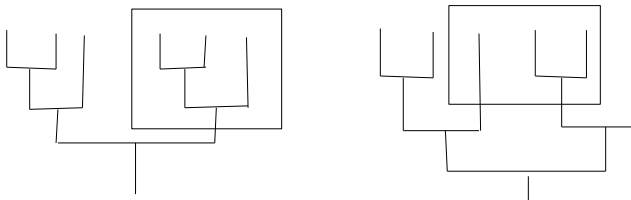
A phylogeny is a \_\_\_\_\_.

Interpret the following phylogeny (what ancestor is highlighted within the box?):



What is a clade?

Which of the following is a clade?



True or False: Clades tell us which organisms are more advanced than others.

The three things to keep in mind when reading a phylogeny are:

- 1.
- 2.
- 3.

A \_\_\_\_\_ is one that two lineages have in common.

A \_\_\_\_\_ is one that evolved in the lineage leading up to a clade and sets that clade apart from other individuals.

Homology:

Analogy:

Phylogenies are useful because:

- 1.
- 2.
- 3.

### **Dating Techniques**

Radiometric Dating:

Stratigraphy:

Molecular Clock:

## Mechanisms of Change

Evolution occurs when there is a change in \_\_\_\_\_ within a population over time.

A more specific definition of evolution is a change in \_\_\_\_\_ over time.

The four mechanisms of change are:

- 1.
- 2.
- 3.
- 4.

The sources of genetic variation are:

- 1.
- 2.
- 3.

Define mutation:

Mutations are \_\_\_\_\_. They do not "try" to supply an organism with what it needs.

\_\_\_\_\_ mutations do not matter for evolution.

The only mutations that matter for evolution are \_\_\_\_\_.

The causes of mutations:

- 1.
- 2.

Define gene flow:

Genetic drift does not work to produce \_\_\_\_\_.

Genetic drift is the evolutionary equivalent of \_\_\_\_\_.

The effects of genetic drift on evolution are:

1.

2.

3.

A population bottleneck is:

Example:

Founder effect occurs:

Example:

Define natural selection:

Define fitness:

Define sexual selection:

The two ways sexual selection works are:

1.

2.

Define adaptation:

The misconceptions of natural selection are:

1.

2.

3.

Co-evolution is:

The ecological interactions likely to be involved in co-evolution are:

- 1.
- 2.
- 3.

**Types of Selection** (define and draw a bell curve that illustrates the concepts)

Directional:

Stabilizing:

Disruptive:

### **Microevolution**

Define microevolution:

Define population:

The processes that affect microevolution:

- 1.
- 2.
- 3.
- 4.

### **Speciation**

Define species:

Define speciation:

Causes of speciation:

1.

2.

Positive Assortative Mating is:

Negative Assortative Mating is:

Non-random mating affects evolution by:

Consanguinous mating causes more/less (circle one) variation in the gene pool.

### **Macroevolution**

Define macroevolution:

The patterns in macroevolution are:

1.

2.

3.

4.

### **Modern Human Variation**

Define polymorphism:

Explain how lactose intolerance is an example of biocultural evolution.

Explain how sickle cell is an example of a heterozygous advantage.

The levels of adaptation are:

- 1.
- 2.
- 3.
- 4.
- 5.

Humans have different skin color because:

What is Bergman's Rule?

What is Allen's Rule?

Why doesn't "race" apply to humans?